

SC-300II/300IIL

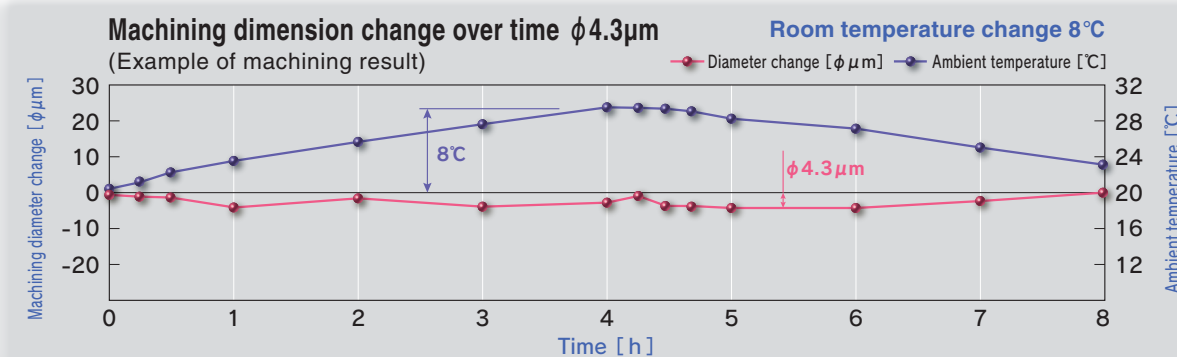
NAKAMURA-TOME
PRECISION INDUSTRY CO.,LTD.



High-performance User-friendly
Multitasking machine

SC-300II / 300III

NT Thermo Navigator-Thermal Growth Control



The values given here are based on the environment set by Nakamura-Tome. These values may change depending on the machine environment and cutting conditions.

Highest Machining Capabilities in its Class!

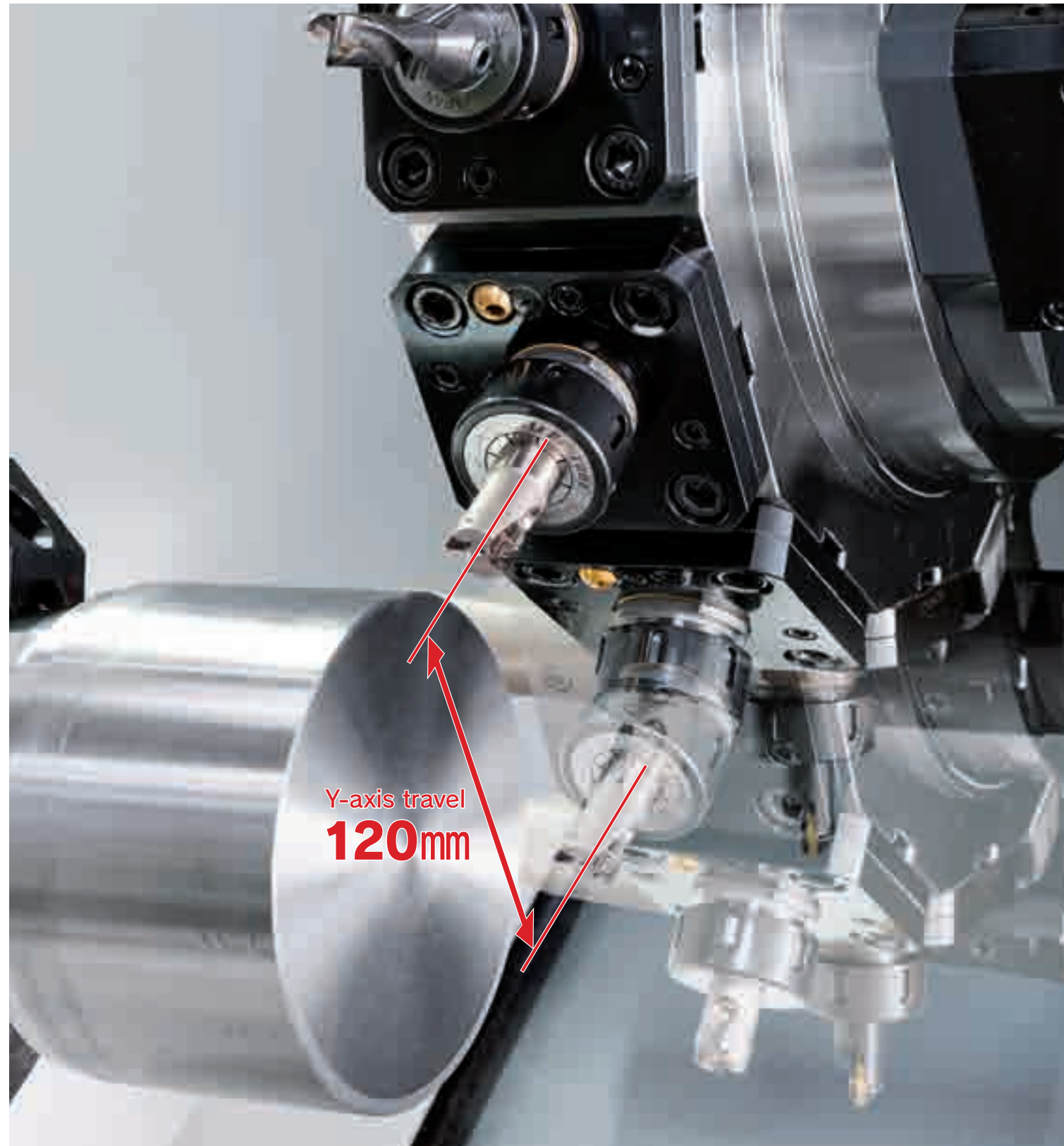
More Capacity with Large Y-axis Travel



Featuring the latest machining technology



Standard

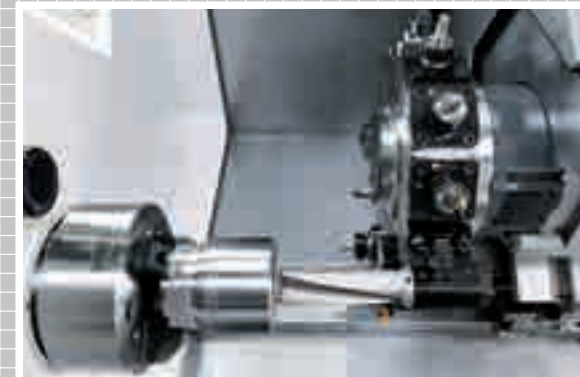
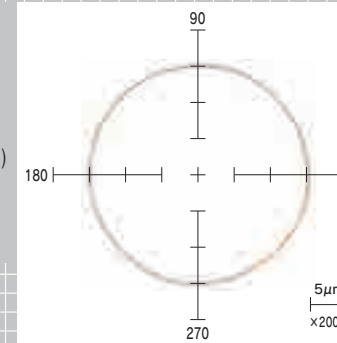


Y-axis travel
120mm

Circularity
0.48 μ m

(Actual measurement example)

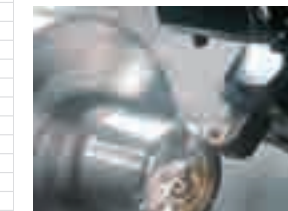
- Rotating speed : 2350min⁻¹
- Cutting material : BsBM



High-rigidity machine structure realizes machining of difficult-to-machine-materials as well as high-hardness materials

Turning

Cross-section area of cutting **4.95 mm²/rev**



- ▶ Cutting depth **9mm** (Max.)
- ▶ Feed rate **0.55mm/rev**
- ▶ Cutting speed **120m/min**

Spindle motor

Output **22/18.5 kw** Torque **500.2/420.6 N·m**

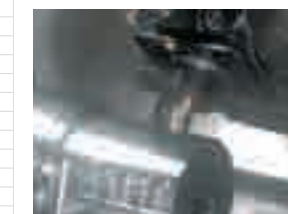
Milling

Y-axis travel **±60 mm**

Driven-Tool spindle rotating speed **6,000 min⁻¹**



- φ20 End mill
- ▶ Diameter **φ20**
 - ▶ Cutting depth **5 mm**
 - ▶ Feed rate **0.14mm/rev**
 - ▶ Cutting speed **140m/min**



- φ22 End mill
- ▶ Diameter **φ22** (2-flute)
 - ▶ Cutting depth **1 mm**
 - ▶ Feed rate **2.0mm/rev**
 - ▶ Cutting speed **100m/min**

Driven-tool spindle motor

Output **7.5/3.7 kw** Torque **40/17.7 N·m**

Easy to use and Fast Machine! User and Environment Friendly!

Bar capacity $\phi 71\text{mm} / \phi 89\text{mm}$ (OP.)

L Spindle motor 22/18.5kW
500.2/420.6N·m
3,500min⁻¹

C-axis C-axis synchronization

Bar capacity $\phi 51\text{mm}$

R Spindle motor (op.) 15/11kW
125.1/68.8N·m
5,000min⁻¹

C-axis C-axis synchronization

Tailstock (op.)

NC Servo driven Tailstock
Tailstock body movement is program controlled by NC servo drive. The setting can be easily done on NT Nurse screen for maximum 12 settings. Each display can be call up by one touch on the NT Nurse button. Two displays can be shown on the same screen.




L Spindle

R Spindle (op.)

Turret

24 stations

16 stations

12 / 24 Station Turret Milling motor 7.5/3.7kW
40/17.7N·m
6,000min⁻¹

16 / 16 Station Turret Milling motor (op.) 5.5/3.7kW
24/18N·m
6,000min⁻¹

Y-axis travel $\pm 60\text{mm}$

12 / 24 - Station Turret		16 / 16 - Station Turret	
Dodecagonal	Turret type	16-Station Turret	
24	Number of tools	16	
24	Number of indexing pos.	16	
12	Number of driven-tools	16	
☐ 20/dia.50mm	Tool size (Square shank) / (Round shank)	☐ 20/dia.32mm	
dia.1mm to 25mm	Collet diameter for driven tools	dia.1mm to 16mm	

Swiveling Operation Panel
The Ergonomically designed operation panel with swiveling function ensures maximum operator support and comfort during machine set up and operation.

15-inch color display is standard



Large door window ensures good visibility of the machine interior.
SC-300II has a large door window to ensure a good visibility of the machine interior during machining and set up.



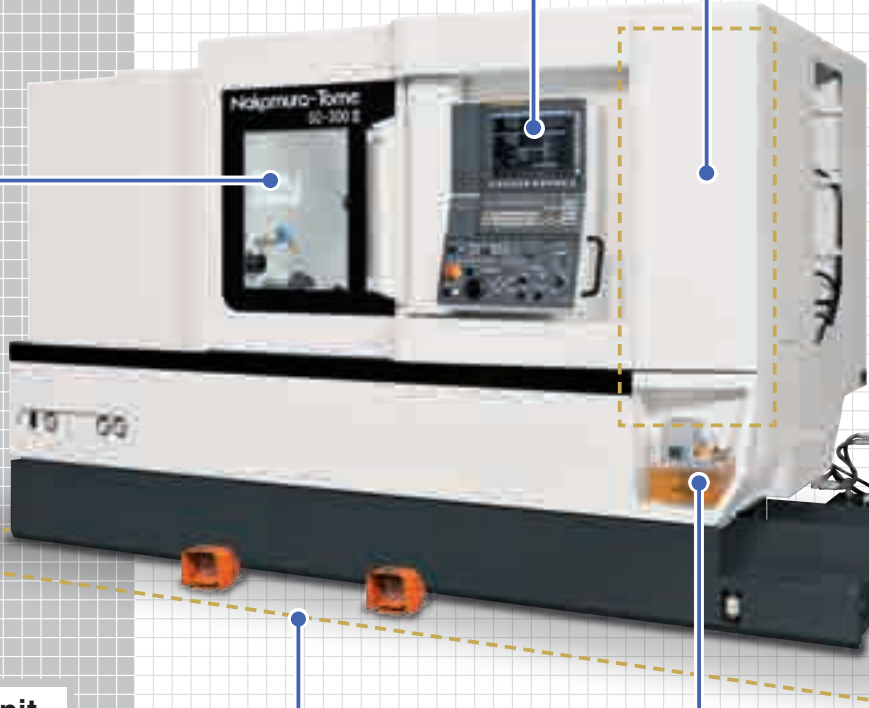
Inverter type hydraulic unit



Power consumption reduction
21%^{*1}
*1) This value may change depending on actual machining conditions.

Lubrication oil collection
Collection rate **47.3%^{*2}**
*2) Without Tailstock

Cover is cut at an angle



Easy to refill lubrication oil



Small floor space with compact design

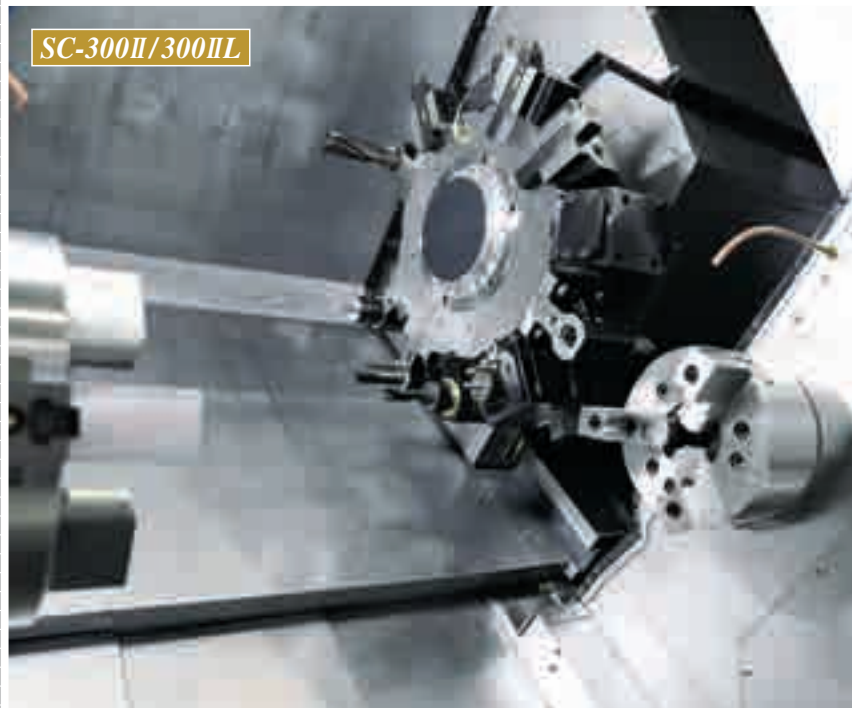
Floor space

SC-300II L 3,996mm × W 2,131mm × H 2,300mm

SC-300III L 4,856mm × W 2,131mm × H 2,300mm

Optimal system configuration with many peripheral devices!

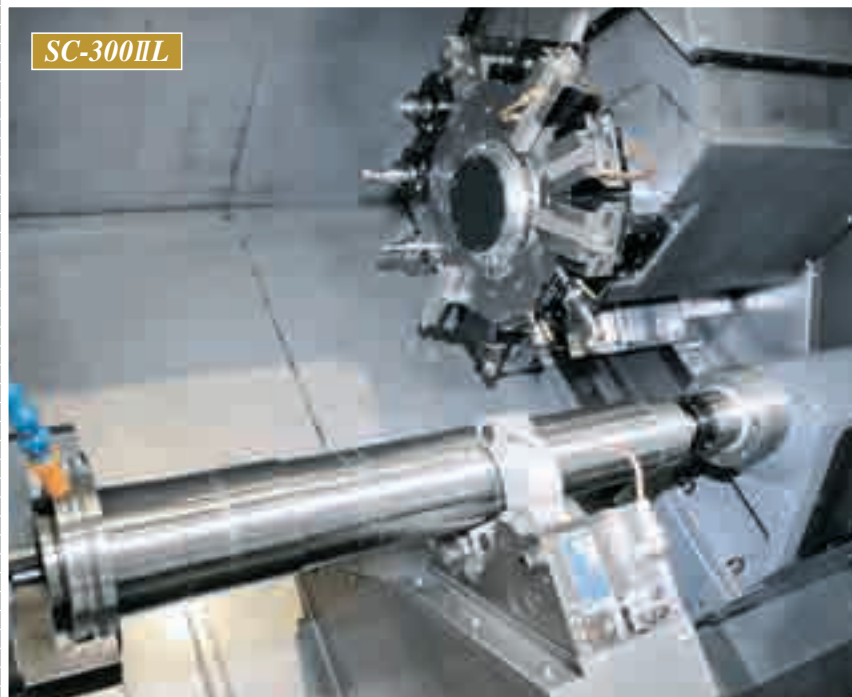
SC-300II/300III



Sub Spindle

- **Distance between spindles**
SC-300II 910mm / 310mm
SC-300III 1310mm / 310mm
- **Chuck size** 165mm (6")
210mm (8")
- **Bar capacity** $\phi 51\text{mm}$
- **Spindle speed** 5000min^{-1}
- **Spindle motor output** 15/11kW
- **C-axis Rapid index speed** 200min^{-1}
- **C-axis Least input increment** 0.001°
- **C-axis Least command increment** 0.001°

SC-300III



Steady rest

- **Driving Method** NC type
CNC servo-driven
- **Positioning stroke** 750mm
- **Model** SLU-X3.1
- **Centering range** 20-165mm
- **Pressure range** 0.8-3.5MPa
- **Max roller surface speed** 725m/min
- **Diameter of rollers** $\phi 47\text{mm}$

* Machine must be equipped with Auto tailstock (Hyd. Knock type). NC Tail Stock is not available with Sub-Spindle Specification. Not available with part catcher A.

Max. Parts weight
10kg × 2

Loading / Unloading **6sec**

High speed Gantry Loader SC-300II

GR-210

High-Speed

Standard Specification

Z-axis Rapid feed rate	200m/min
Y-axis rapid feed rate	120m/min
X-axis rapid feed rate	50m/min
Hand rotation speed	1sec/180deg
Workpiece diameter	$\phi 20 - \phi 220\text{mm}$
Workpiece length	20-100mm



Stocker

	WS-442W	WS-445W
Stocker type	multi-layer	multi-layer
Number of pallets	20	14
Workpiece diameter	$\phi 20 - \phi 220\text{mm}$	
Min. Workpiece length	20mm	
Building height	450mm	
Max capacity road	40kg/pallet	
Number of lifters	2	

* Need a special study when the workpiece length is shorter than 20mm.



Digital Chuck interlock Standard!!

No mechanical adjustment needed.
Productivity improved with faster chuck open / close operation!

- Bar stopper
- Work pusher
- Pull-out the material
- Work rest
- Tailstock
- Part catcher A/G
- Gantry Loader

- No mechanical adjustment needed. It can be set in 0.1 mm increments and adjustment can be done easily.
- Settings can be saved and recalled, Reducing Set-Up time for repetitive jobs.
- Displayed from the NT setting screen.
- Bar stopper, Parts Transfer Operations etc. All process related with the chuck open / close operation becomes faster.

The Ultimate Powerful-Machine : High-Rigidity, High- Precision and User-Friendly Design.



▼ Capacity		
Max. turning diameter	360mm	
Distance between center and spindle (max. / min.)	713.5mm / 213.5mm	
Max. turning length (Tailstock / R Spindle)	600mm / 635mm	
Bar capacity	φ71mm	φ89mm (op.)
Chuck size	10" (12")	
▼ Axis travel		
Slide travel (X / Z)	232.5mm / 635mm	
Slide travel (Y)	±60mm	
▼ Spindle		
Spindle speed	3,500min ⁻¹	3,500min ⁻¹
I.D. of front bearing	120mm	140mm
Spindle motor	22/18.5kW	
▼ Turret		
Type of turret head / Number of indexing pos.	Dodecagonal drum turret / 24	16-Station Turret / 16
Tool size (square shank / round shank)	□25mm / φ50mm	□16mm / φ32mm
▼ Rotating tool		
Driven-tool spindle speed	6,000min ⁻¹	6,000min ⁻¹
Driven tools	7.5/3.7kW	5.5/3.7kW
Rotary system / Number of driven-tool stations	Individual rotation / 12	Individual rotation / 16
Tool shank	φ1 - φ25mm	φ1 - φ16mm
▼ C-axis		
Rapid index speed	200min ⁻¹	
Cutting feed rate	1 - 4800°/min	
Least input increment / Least command increment	0.001°/0.001°	
▼ R Spindle (op.)		
Chuck size / Bar capacity	165mm (6") 210mm (8") / φ51mm	
Spindle speed / Spindle motor	5,000min ⁻¹ / 15/11kW	
Distance between spindles	max. 910mm / min. 310mm	
▼ Tailstock (op.)		
Driving Methods	Hyd. Knock type	NC type
Tailstock force	1.3 - 7kN	2.5 - 6.5kN
Tailstock taper size	MT-5 (Rotating center)	op. MT-4 (Built-in center)
Quill Diameter / Quill Travel	90mm / 100mm	—
▼ General		
Floor space (L × W × H)	3,996mm × 2,131mm × 2,300mm	
Machine weight (incl. control)	9,000kg	

Option

Coolant / oil blow unit

- Air blow through spindle (L/R)
- Coolant blow through spindle (L/R)
- Air & Coolant blow through spindle (L/R)
- Air & Coolant blow through the Turret (Standard / High pressure)
- Fixed air blow (L/R)
- Coolant piping at upper side of spindle (L/R)

Automation

- In-process measuring system Han-bei
- High speed skip
- Manual detachable Tool Setter (L side only)
- Manual detachable Tool Setter (L/R)
- Auto Tool Setter swing-in type (Left side only)
- Automatic door
- Parts catcher type A with stocker
- Parts catcher type A with outlet chute
- Part conveyor
- Selected when using Parts catcher type A with outlet chute
- Drill breakage detection (Max. φ20mm)
- Parts ejector on Right spindle. (stroke: 100mm)
- Select either Air blow through the spindle or Air & Coolant blow through the spindle
- Zen-Bei interface (Shaft loader interface)
- Bar feeder interface (ALPS, IEMCA, FMB-TURBO, LNS)
- Triple alarm light (Yellow, Red and Green)
- Cycle end buzzer

Safety unit

- Hole for oil mist collector (φ150mm)
- Automatic power off
- Door interlock

High precision specification

- Linear scale

Hydraulic unit

- Chuck high/low pressure
- Additional Chuck foot switch

Tailstock unit

- 2 steps quill pressure (for Auto tailstock)
- 2 steps quill speed (for Auto tailstock)

Coolant unit

- High Pressure coolant pump "GRUND-FOS" 550/750W (MTH2-6/5)
- 50HZ Flow (L/min) / head (m) 17/43 ~ 42/32 ~ 58/20
- MTH2-6/5-0.55kW
- 60HZ Flow (L/min) / head (m) 17/61 ~ 50/46 ~ 67/30
- MTH2-6/5-0.75kW
- High Pressure coolant pump "GRUND-FOS" 1100W (Leak valve included)
- 50HZ Flow (L/min) / head (m) 20/92 ~ 75/34
- 60HZ Flow (L/min) / pumping head (m) 20/92 ~ 75/34
- MTR3-15/1-1.1kW
- 60HZ Flow (L/min) / head (m) 23/72 ~ 50/46 ~ 90/28
- 60HZ Flow (L/min) / head (m) 23/72 ~ 50/46 ~ 90/28
- MTR3-15/8-1.1kW
- Chip flow coolant pump 400W (for sub-spindle machine)
- Dry cut option
- Coolant level float switch
- Non-return valve for coolant supply
- Oil skimmer
- Chip conveyor Right side outlet with timer
- Chip bucket
- Chip conveyor I/F
- Chip conveyor I/F with timer

Complete package! Many devices for processing long parts.

• Mata-Bei (sub-spindle) • NC Tail Stock • NC Steady rest + Auto tailstock



M Milling Motor	Y Y-axis	C Main spindle C-axis	B NC Tail stok (op.)	B Sub spindle (op.)	C Sub spindle C-axis (op.)
▼ Capacity					
Max. turning diameter			360mm		
Distance between center and spindle (max. / min.)			1213.5mm / 213.5mm		
Max. turning length (Tailstock / R Spindle)			1,100mm / 1,135mm		
Bar capacity			φ71mm	φ89mm (op.)	
Chuck size			10" (12")		
▼ Axis travel					
Slide travel (X / Z)			232.5mm / 1,135mm		
Slide travel (Y)			±60mm		
▼ Spindle			φ71mm	φ89mm (op.)	
Spindle speed			3,500min ⁻¹		3,500min ⁻¹
I.D. of front bearing			120mm		140mm
Spindle motor			22/18.5kW		
▼ Turret			12-Station Turret	16-Station Turret	
Type of turret head / Number of indexing pos.			Dodecagonal drum turret / 24		16-Station Turret / 16
Tool size (square shank / round shank)			□25mm / φ50mm		□16mm / φ32mm
▼ Rotating tool			12-Station Turret	16-Station Turret	
Driven-tool spindle speed			6,000min ⁻¹		6,000min ⁻¹
Driven tools			7.5/3.7kW		5.5/3.7kW
Rotary system / Number of driven-tool stations			Individual rotation / 12		Individual rotation / 16
Tool shank			φ1 - φ25mm		φ1 - φ16mm
▼ C-axis					
Rapid index speed			200min ⁻¹		
Cutting feed rate			1 - 4800°/min		
Least input increment / Least command increment			0.001°/0.001°		
▼ R Spindle (op.)					
Chuck size / Bar capacity			165mm (6") 210mm (8") / φ51mm		
Spindle speed / Spindle motor			5,000min ⁻¹ / 15/11kW		
Distance between spindles			max. 1,310mm / min. 310mm		
▼ Tailstock (op.)					
Driving Methods			Hyd. Knock type		NC type
Tailstock force			1.3 - 7kN		2.5 - 6.5kN
Tailstock taper size			MT-5 (Rotating center) op. MT-4 (Built-in center)		
Quill Diameter / Quill Travel			90mm / 100mm		—
▼ General					
Floor space (L × W× H)			4,856mm × 2,131mm × 2,300mm		
Machine weight (incl. control)			10,000kg		

Option

Coolant / oil blow unit

- Air blow through spindle (L/R)
- Coolant blow through spindle (L/R)
- Air & Coolant blow through spindle (L/R)
- Air & Coolant blow through the Turret (Standard / High pressure)
- Fixed air blow (L/R)
- Coolant piping at upper side of spindle (L/R)

Automation

- In-process measuring system Han-bei
- High speed skip
- Manual detachable Tool Setter (L side only)
- Manual detachable Tool Setter (L/R)
- Auto Tool Setter swing-in type (Left side only)
- Automatic door
- Parts catcher type A with stocker
- Parts catcher type A with outlet chute
- Part conveyor
- Selected when using Parts catcher type A with outlet chute
- Drill breakage detection (Max. φ20mm)
- Parts ejector on Right spindle, (stroke: 100mm)
- Select either Air blow through the spindle or Air & Coolant blow through the spindle
- Zen-Bei interface (Shaft loader Interface)
- Bar feeder interface (ALPS, IEMCA, FMB-TURBO, LNS)
- Triple alarm light (Yellow, Red and Green)
- Cycle end buzzer

Safety unit

- Hole for oil mist collector (φ150mm)
- Automatic power off
- Door interlock

High precision specification

- Linear scale

Hydraulic unit

- Chuck high/low pressure
- Additional Chuck foot switch

Tailstock unit

- 2 steps quill pressure (for Auto tailstock)
- 2 steps quill speed (for Auto tailstock)

Steady rest

- NC Steady rest A L: SMW SLU-X3.1

Coolant unit

- High Pressure coolant pump "GRUND-FOS" 550/750W (MTH2-6/5)
50Hz Flow (L/min) / head (m) 17/43 ~ 42/32 ~ 58/20
MTH2-6/5-0.55kW
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MTH2-6/5-0.75kW
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50Hz Flow (L/min) / head (m) 20/92 ~ 75/34
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MTR3-15/15-1.1kW
60Hz Flow (L/min) / head (m) 23/72 ~ 50/46 ~ 90/28
60Hz Flow (L/min) / head (m) 23/72 ~ 50/46 ~ 90/28
MTR3-15/8-1.1kW
- Chip flow coolant pump 400W (for sub-spindle machine)
- Dry cut option
- Coolant level float switch
- Non-return valve for coolant supply
- Oil skimmer
- Chip conveyor Right side outlet with timer
- Chip bucket
- Chip conveyor I/F
- Chip conveyor I/F with timer

Full Operator Support: User Friendly and Highly Reliable.

**Jig less!
Set-up less!
Skill less!**

This essential function
for multitasking
machines is standard.



Main Features

Standard

- NT Work Navigator
- Airbag (Overload detection)
- Advanced NT Nurse

Option

- NT Manual Guide i (LUCK-BEI II)
- Net Monitor



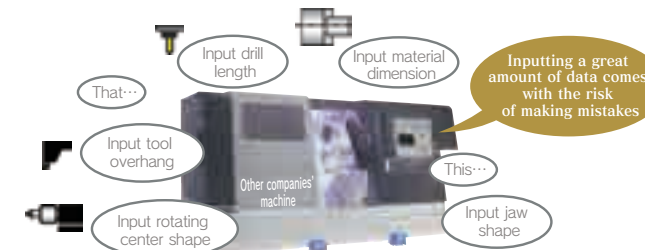
			Standard	Option
Program storage length	Sub-spindle (MATA-BEI)	without	512 kbyte (1,280m)	2 Mbyte (2,560m)
		with	1 Mbyte (2,560m)	
Program registered number	Sub-spindle (MATA-BEI)	without	400	1000
		with	800	
Tool offset pairs			99	200

Airbag (Overload detection)

Nakamura-Tome machines will not break for the slightest collision, as other machines do. The function minimize damage in case of collision.

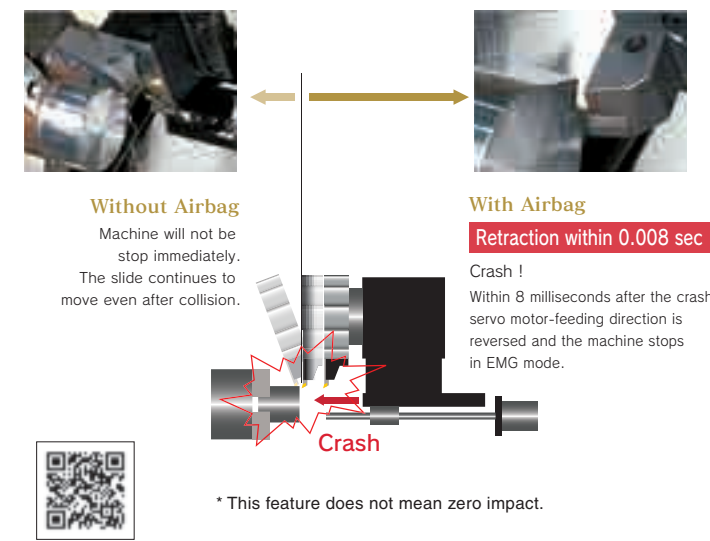
Even with barrier function, machine collisions may occur

Soft barrier function is not perfect.
If wrong data is input, a collision will occur.



When unavoidable human error results in machine collision, there is no reason to panic.

All Nakamura-Tome machines are equipped with a safety feature called "airbag" (overload detection), which will greatly reduce the impact force and prevent heavy damage to the machine.



NT Work Navigator

New Navigator for X-axis and Y-axis

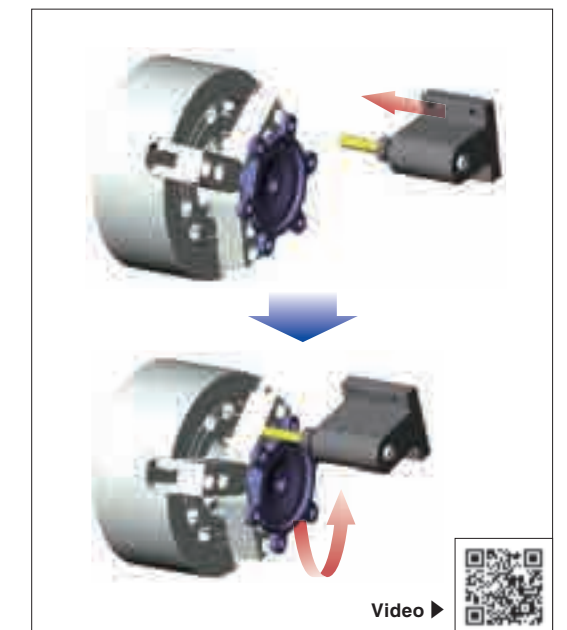


• Advanced NT Work Navigator !

Navigation function is expanded to also include the X and Y-axis. Coordinate Recognition can make the part's outer surface in the X or Y-Axis direction.

• No fixtures required

Machining parts with non-round shapes, such as forgings or castings requires that the raw part coordinates be recognized by the CNC control. In order to achieve this without requiring extra cost or additional options, the NT Navigator is used. It works just by touching the part with a simple inexpensive probe (mostly round bar mounted on a tool holder) and using the torque control feature of the servo-motor, which is to record required coordinates in the CNC. The NT Navigator is a cost cutting feature in multitasking machines, eliminating the need for positioning fixtures and special clamping devices.



Featuring Functions to Make Efficient Programs Faster.

Advanced NT Nurse

NT Nurse is software that provides the operator with user-friendly support for operation, programming and production on the machine. Among vital features are phase recognition (a must for multitasking), direct chucking to prevent positioning error during transfer, and perfect synchronization of the left

and right hand spindles. Among other features, are the load monitor for detecting tool wear and tool breakage, tool life management, operation condition monitoring, in addition to many other features to simplify programming, set up, operation and production, all offered in one single package.

Useful functions

This only part of 24 functions



Menu screen



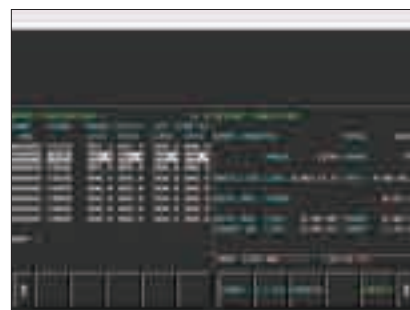
Tool counter



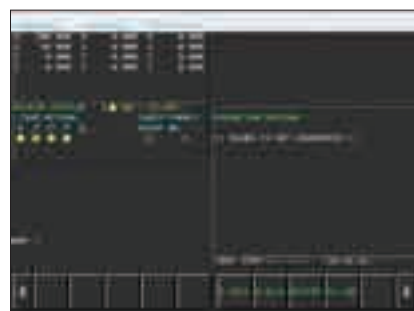
Tool Life



Energy Saving



Operation condition of each tool



Operation message



Quick offset



NT Nurse call button

Up to two NT Nurse frequently used functions can be registered, and later called with in one-key stroke.

NT Manual Guide i (LUCK-BEI II) Option

A programming guidance system with the ability to generate NC programs (ISO/EIA G-code programs) easily. Processes created in conversational mode can be cut, copied or moved ensuring flexibility. Additionally, several cycles such as part-transfer cycle, requiring waiting M-codes, are readily made with the "NC program editing support function". The "NC program simulation function" can be used to check created- programs by tool-path simulation or solid-model animation.



▲ Process Editing Function

NT Manual Guide i automatically recognizes each process and lists all processes. Operator can easily change and optimize the program by moving processes, copying processes or adding waiting-functions.

▲ Fixed-form sentence function

NT Manual Guide i contains more than 300 types of fixed form sentences. Operator can select these fixed form sentences for the program from a menu screen.

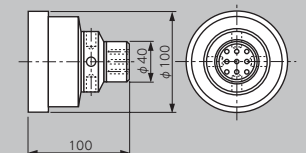


▲ Simulation

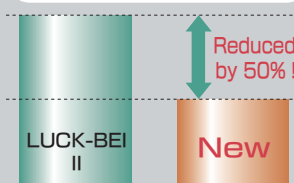
Accurate simulation of turning and milling operations using a 3D solid model.

Automatic Cutting-Condition Setting Function

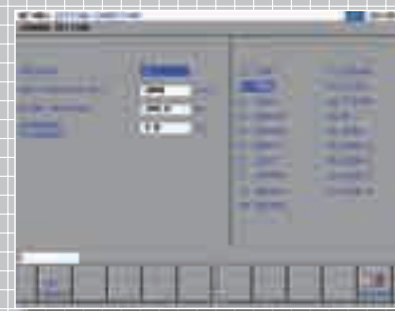
By setting the material type and required surface roughness, cutting conditions are automatically generated. These can be also changed depending on customer's experience.



Key Stroke frequency



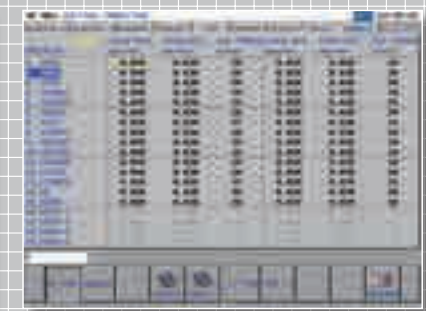
By introducing the "automatic cutting condition setting function", the number of key strokes required to make a program were reduced by 50% reduced, compared with the previous NT-Manual guide version.



By selecting the material, cutting conditions are automatically input.



By setting the surface roughness, machining conditions are automatically input



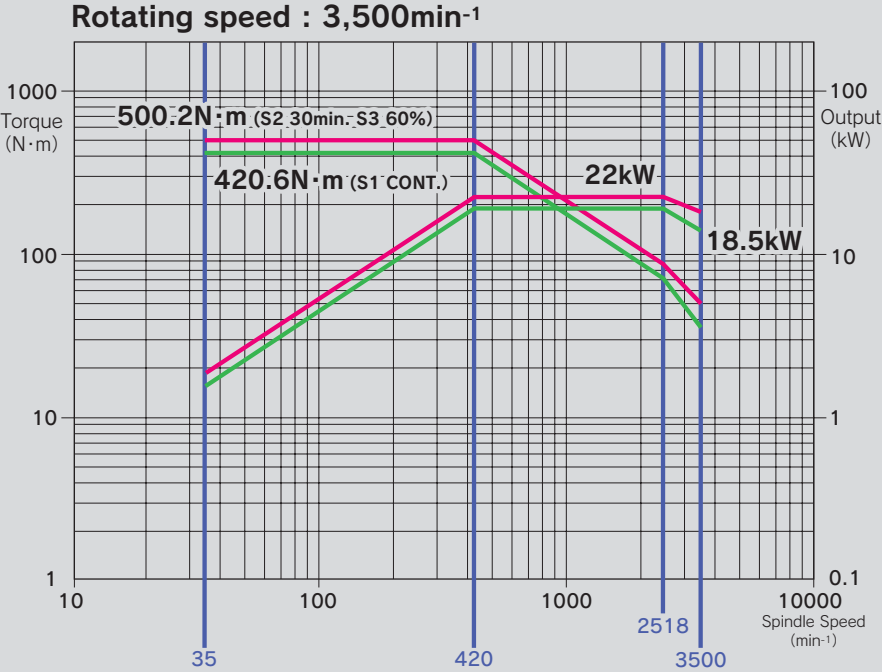
Cutting conditions. End mill

High-Performance Turning and Milling Motors

SC-300II/300III

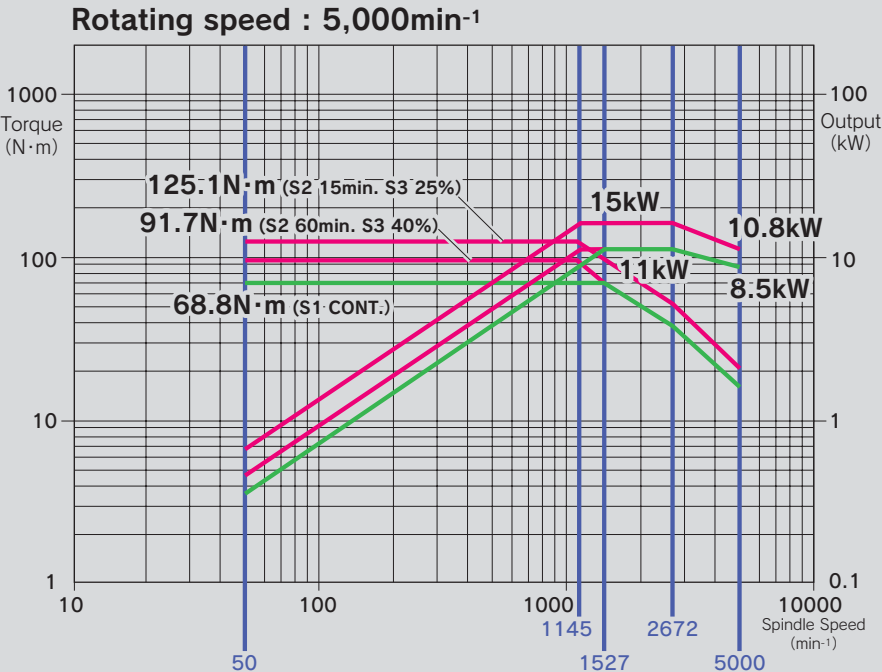
L
Spindle motors

- Standard
- Bar capacity
- φ71mm
- φ89mm (OP.)



R
Spindle motors

- Option
- Bar capacity
- φ51mm

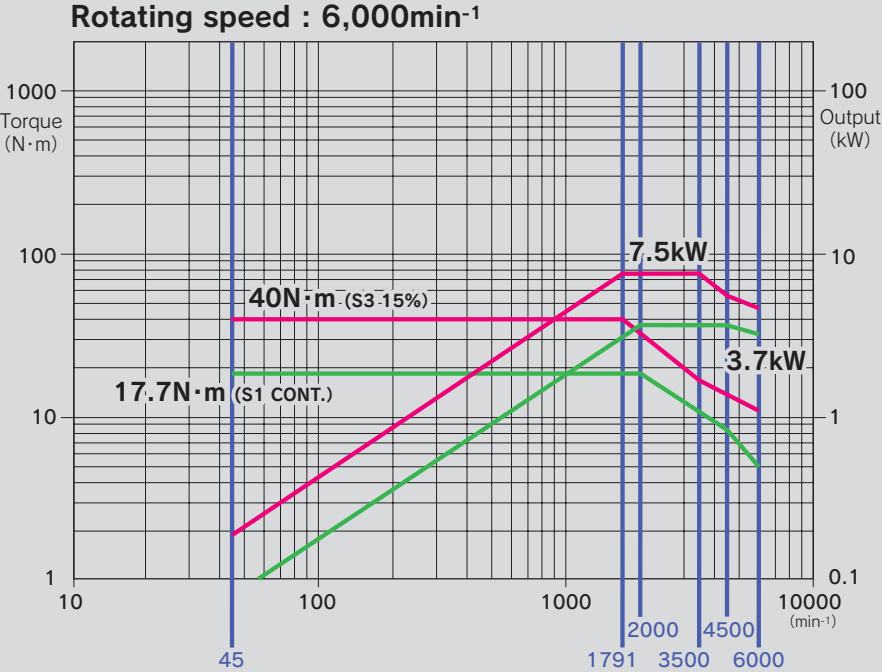


High-Performance Turning and Milling Motors

SC-300II/300III

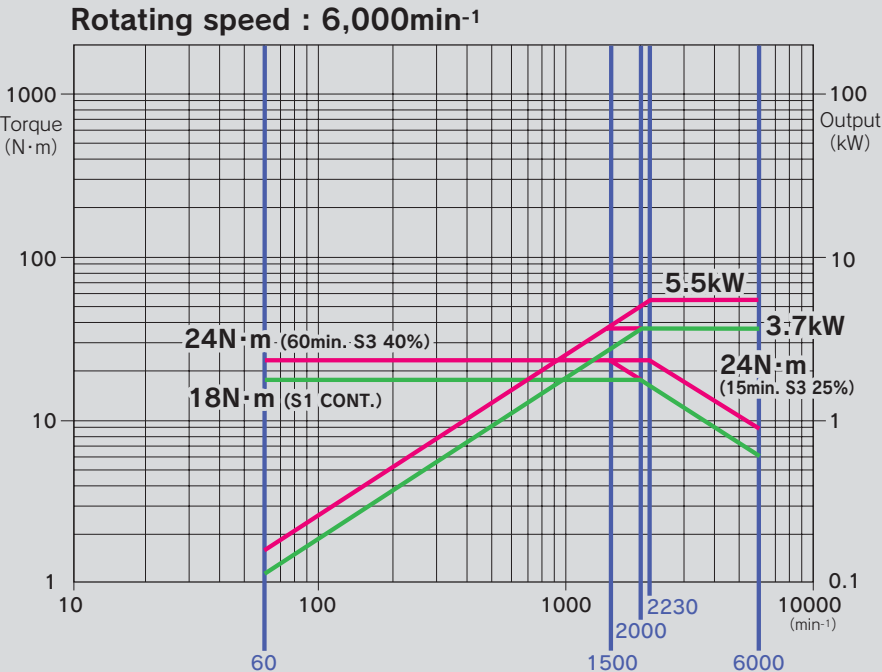
Driven-tool
motor

- 12
Station Turret
- Standard



Driven-tool
motor

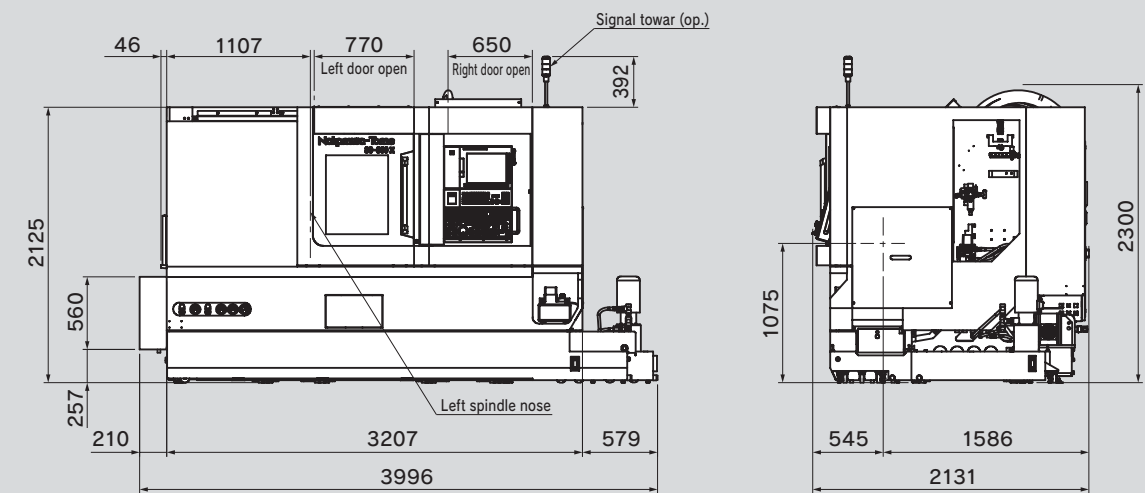
- 16
Station Turret
- Option



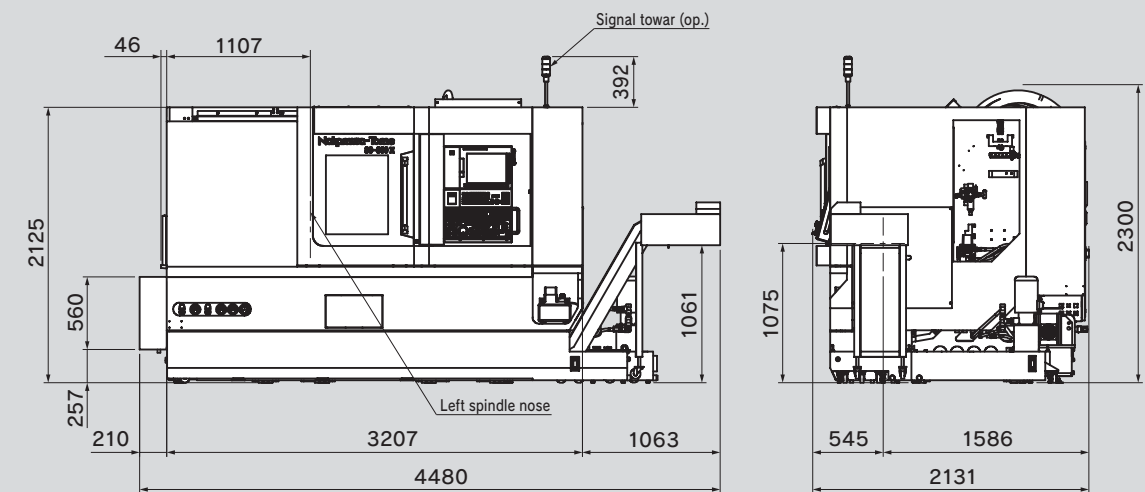
Machine Dimensions

SC-300II

► Standard



► Chip conveyor right side outlet type

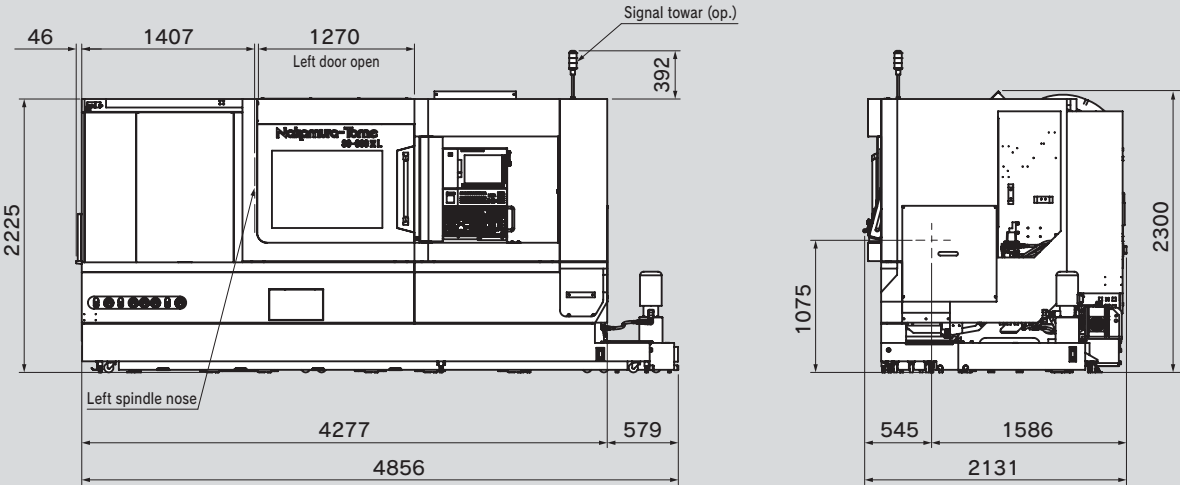


Unit : mm

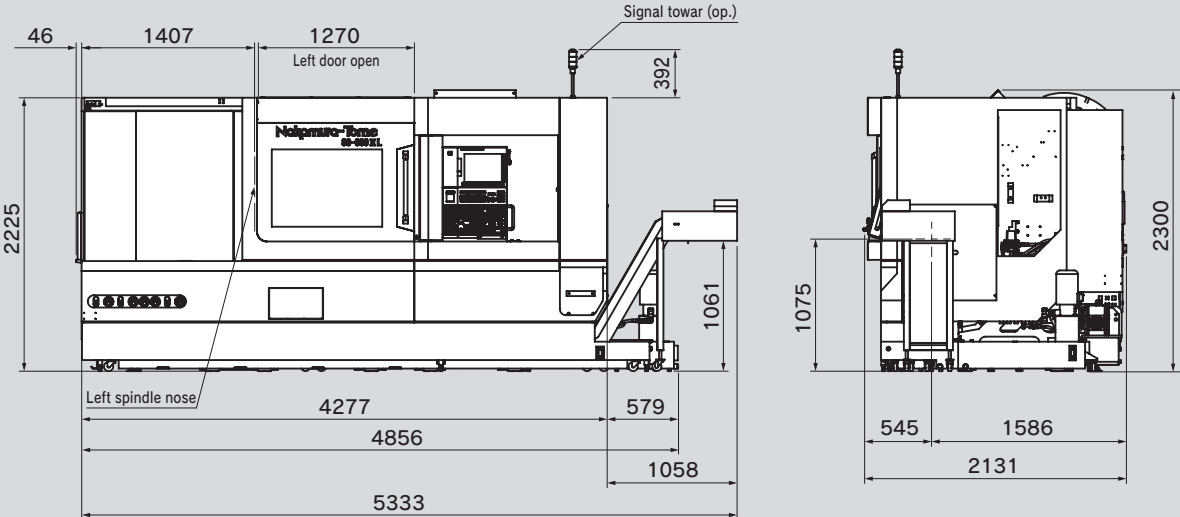
Machine Dimensions

SC-300III

► Standard



► Chip conveyor right side outlet type



Unit : mm



SC-150II



SC-200



SC-200L



SC-250



SC-300II



SC-300III



SC-450



SC-450L



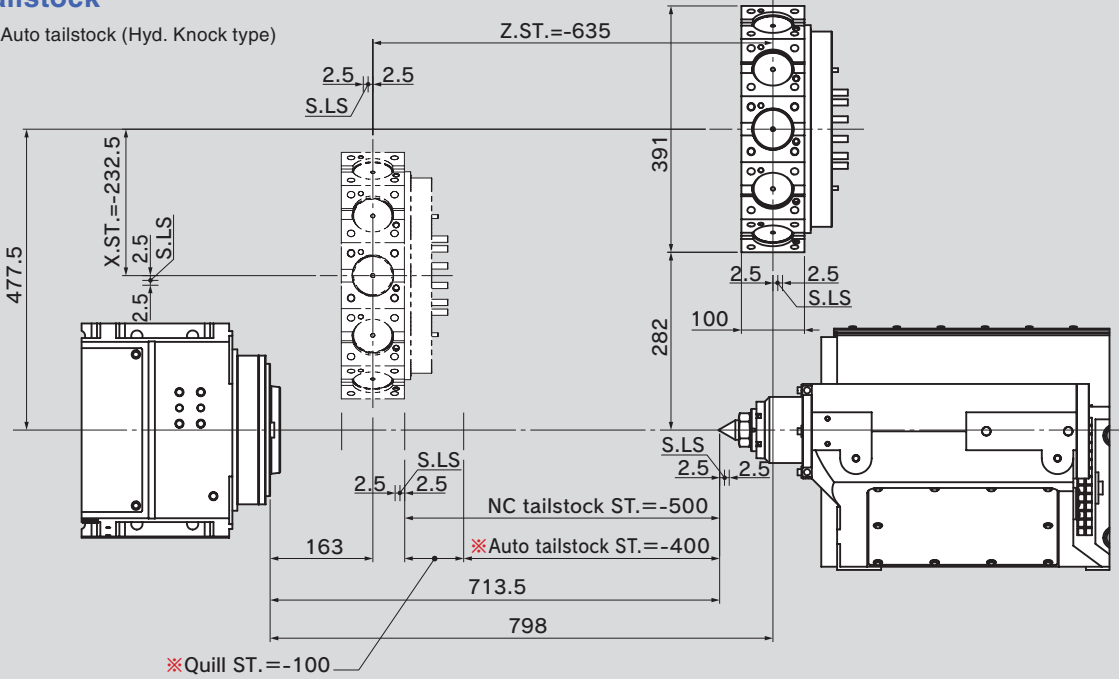
SC-450LL

Slide Travel Range

SC-300II

► NC Tailstock

* it is for Auto tailstock (Hyd. Knock type)



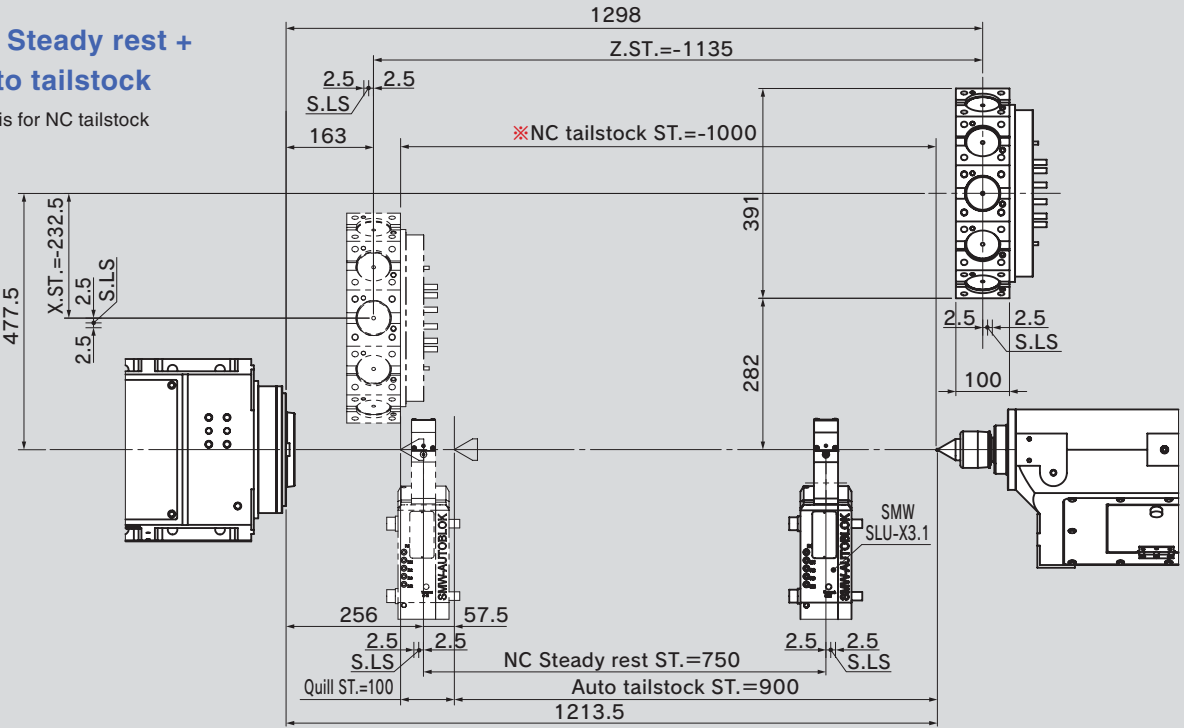
Unit : mm

Slide Travel Range

SC-300III

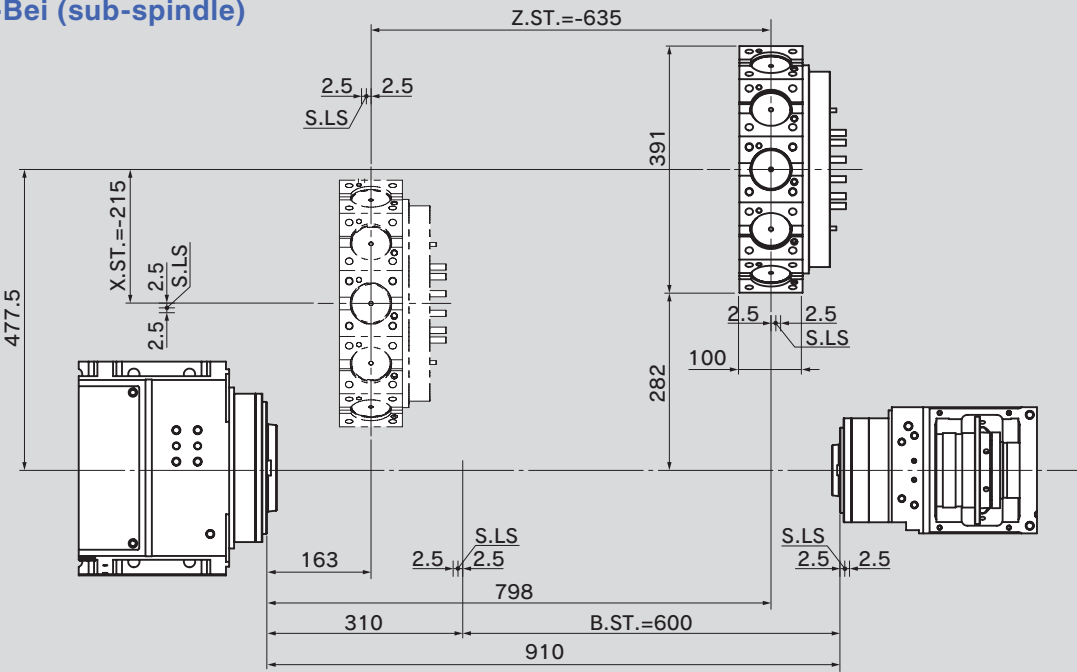
► NC Steady rest +
Auto tailstock

※ It is for NC tailstock



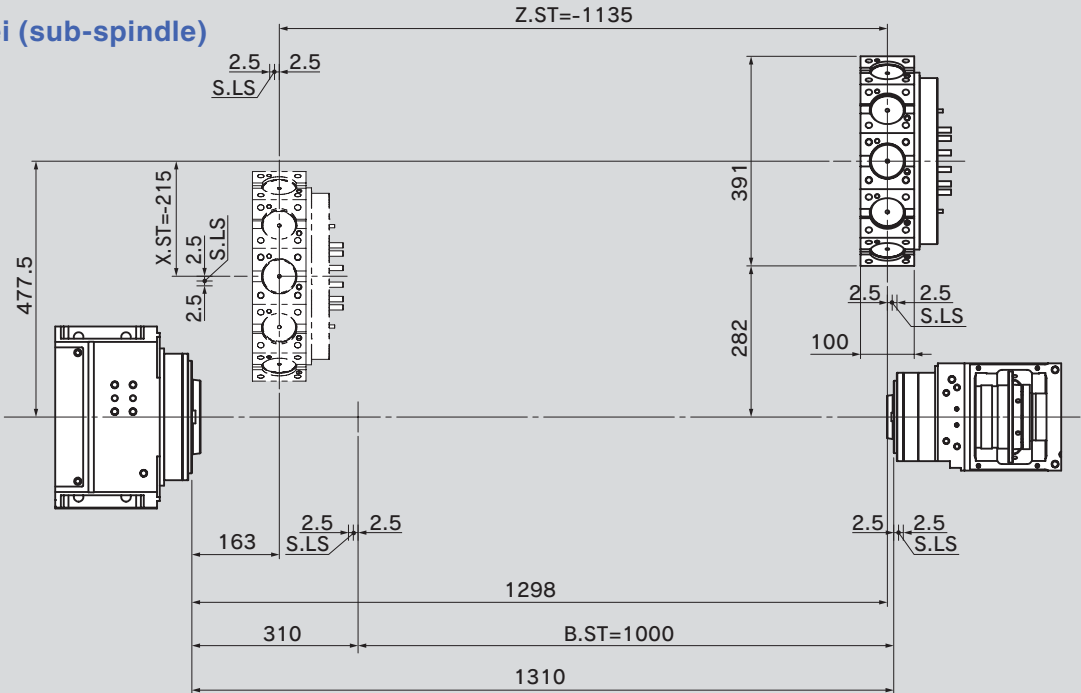
Unit : mm

► Mata-Bei (sub-spindle)



Unit : mm

► Mata-Bei (sub-spindle)

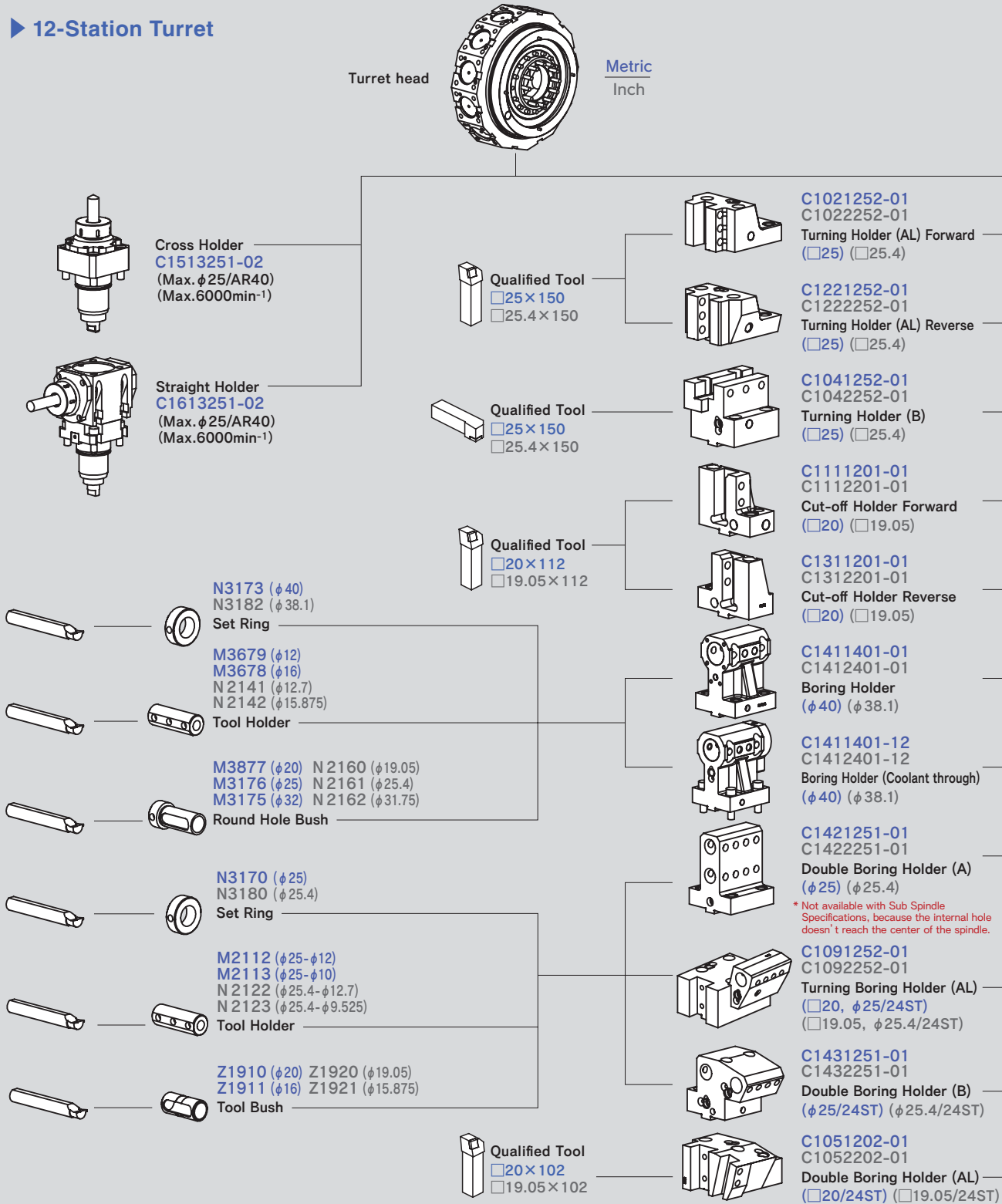


Unit : mm

Tooling System Diagram

SC-300II/300III

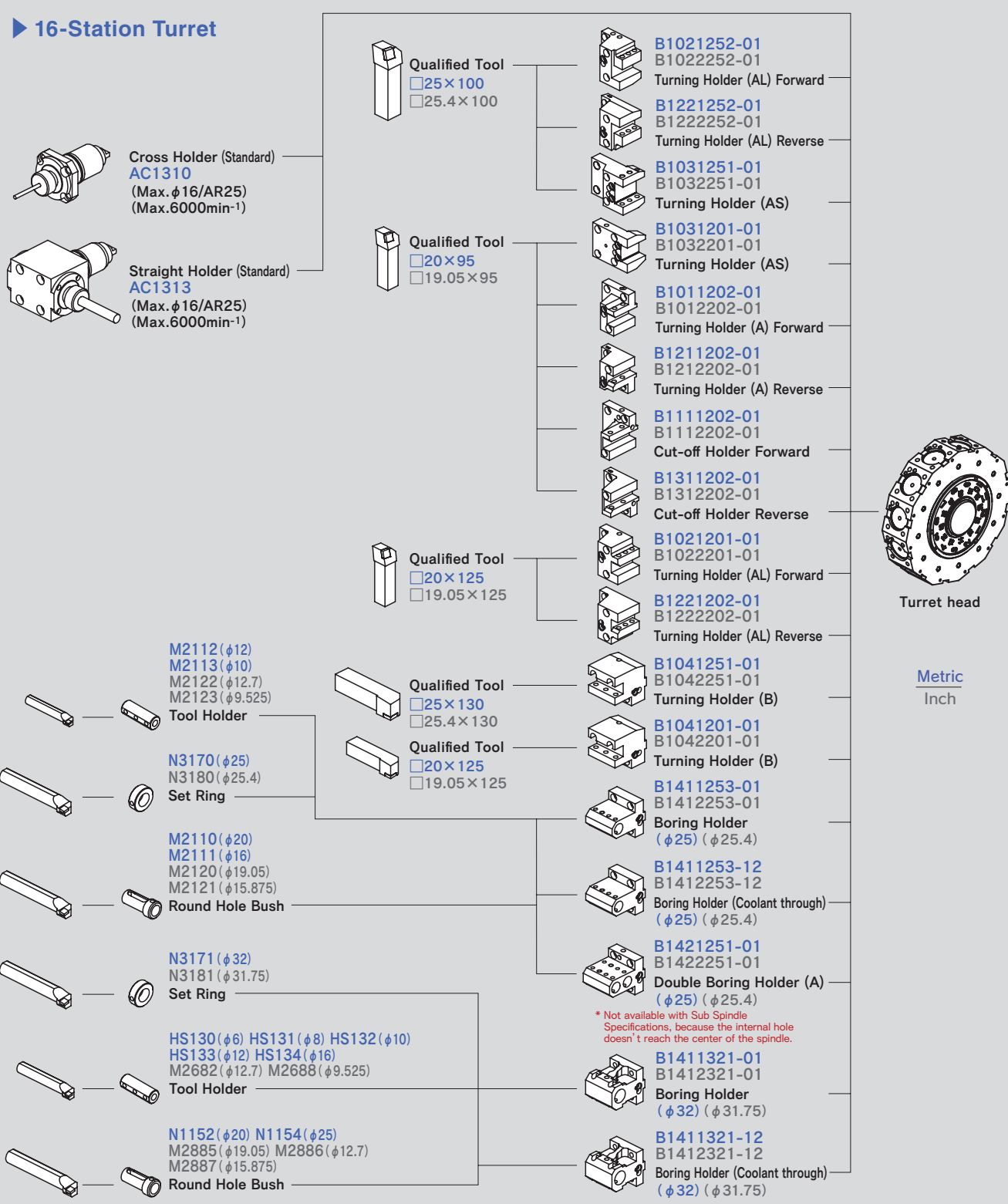
12-Station Turret



Tooling System Diagram

SC-300II/300III

16-Station Turret



Machine Specification

SC-300II/300IIL

Capacity

Max. turning diameter		360mm	
Standard turning diameter		280mm	
Distance between center and spindle (max. / min.)	300II	713.5mm / 213.5mm	
	300IIL	1213.5mm / 213.5mm	
Max. turning length Sub-spindle (MATA-BEI)(op.)	300II	600mm / 635mm	
	300IIL	1,100mm / 1,135mm	
Bar capacity		φ71mm	φ89mm (op.)
Chuck size		10" (12")	

Axis travel

Slide travel (X)		232.5mm
Slide travel (Z)	300II	635mm
	300IIL	1,135mm
Slide travel (Y)		±60mm
Rapid feed X		25m/min
Rapid feed Z		30m/min
Rapid feed Y		12.5m/min

Spindle	φ71mm	φ89mm (op.)
Spindle speed	3,500min ⁻¹	3,500min ⁻¹
Spindle speed range	Stepless	Stepless
Spindle nose	A2-8	A2-8
Hole through spindle	85mm	100mm
I.D. of front bearing	120mm	140mm
Hole through draw tube	72mm	90mm

C-axis

Least input increment	0.001°
Least command increment	0.001°
Rapid index speed	200min ⁻¹
Cutting feed rate	1 - 4,800°/min
C-axis clamp	Disk clamp
C-axis connecting time	1.5sec.

Precautions about the use of cutting coolant

Synthetic Coolants are Damaging to Machine Components. Concerning the use of cutting fluids, cautions have to be taken on the type of coolant being used. Among coolants available in the market, some types are damaging to machine components and should be avoided. Typical damages are turcite wear, peeling of paint, cracking and damage to plastics and polymers, expansion of rubber parts, corrosion and rust build up on aluminum and copper. To prevent such damages, coolants that are synthetic, or containing chlorine have to be avoided. Machine warranty terms do not apply to any claims or damage arising from the use of improper coolant.

Turret	12-Station Turret	16-Station Turret
Type of turret head	Dodecagonal drum turret	16-Station Turret
Number of driven-tool stations	24	16
Number of index positions	24	16
Tool size (square shank)	□25mm	□16mm
Tool size (round shank)	φ50mm	φ32mm

Rotating tool	12-Station Turret	16-Station Turret
Driven-tool spindle speed	6,000min ⁻¹	5,000min ⁻¹
Driven tools	7.5/3.7kW 40/17.7N·m	5.5/3.7kW 24/18N·m
Spindle speed range / Rotary system	Stepless / Individual rotation	
Number of driven-tool stations	12	16
Tool shank	φ 1mm - φ 25mm	φ 1mm - φ 16mm

Tailstock (op.)

Driving Methods		Hyd. Knock type	NC type
Tailstock postioning stroke / Rapid feed	300II	400mm / -	500mm / 8m/min
	300IIL	900mm / -	1,000mm / 8m/min
Tailstock force		1.3 - 7.0kN	2.5 - 6.5kN
Tailstock taper size		MT-5 (Rotating center)	op. MT-4 (Built-in center)
Quill diameter / Quill travel		φ90mm / 100mm	—

Sub Spindle(op.)

Chuck size / Bar capacity	165mm (6") 210mm (8") / φ51mm
Spindle speed / Drive motor	5,000min ⁻¹ / 15/11kW
Distance between spindles (max. / min.)	300II 910mm / 310mm
	300IIL 1,310mm / 310mm

Drive motor

L-Spindle	22/18.5kW 500.2/420.6N·m
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General

Height	300II	2,300mm
	300IIL	2,300mm
Floor space (L × W)	300II	3,996mm × 2,131mm
	300IIL	4,856mm × 2,131mm
Machine weight (incl. control)	300II	9,000kg
	300IIL	10,000kg

Power requirements

power supply	31/39.2kVA
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Control Specification

SC-300II/300IIL

Items

Control type	Nakamura-Tome FANUC
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Controlled axes

Controlled axes	4axes (X, Z, C, Y)
Least command increment	4axes

Input command

Least input increment	0.001mm/0.0001inch (diameter for X-axis), 0.001°
Least command increment	X : 0.0005mm / Z, Y : 0.001mm / C : 0.001°
Max. programmable dimension	±999999.999mm /±39370.0787in, ±999999.999°
Absolute / incremental programming	X, Z, C, Y / U, W, H, V
Decimal input	Standard
Inch / Metric conversion	G20 / G21
Programmable data input	G10

Feed function

Cutting feed	feed / min X , Z : 1 - 8000mm/min, 0.01 - 314inch/min (1 - 4800mm/min, 0.01 - 188inch/min) Y : 1 - 8000mm/min, 0.01 - 314inch/min (1 - 4800mm/min, 0.01 - 188inch/min) C : 1 - 4800°/min feed / rev : 0.0001 - 500.0000mm/rev 0.000001 - 9.999999inch/rev The maximum cutting feed rate is the value in AI contour control mode. It is also on with G316 command. The values in parentheses are normal values.
Dwel	G04
Feed per minute / Feed per revolution	G98 / G99
Thread cutting	G32F designation
Thread cutting retract	Standard
Continuous thread cutting	Standard
Variable lead threading	G34
Handle feed	Manual pulse generator 0.001/ 0.01/ 0.1mm,"(per pulse)
Automatic acceleration / deceleration	Standard
Linear accel. / decel. After cutting feed interpolation	Standard
Rapidfeed override	F0, 25, 50, 100% (changeable to every 10% by switch)
Cutting feedrate override	0 - 150% (each 10%)
AI contouring control I	G5.1
Spindle override	50% - 120% Set every 10%

- Safety devices such as various interlocks, fences for robotics, auto loading device, work stocker, automatic fire extinguisher etc. are available as options which can be included in your purchase package. Please contact our local distributor and dealer for your specific requirements.

Program memory

Part program storage length	512kbyte (Total 1,280m) *Refer to p.13
Part program editing	delete, insert, change
Program number search	Standard
Sequence number search	Standard
Address search	Standard
Number of registerable programs	400 *Refer to p.13
Tool offset pairs	99 *Refer to p.13
Program storage memory	Backed up by battery
Multiple program simultaneous editing	Standard
DNC operation through memory card	Standard (not including memory card)
Extended part program editing	Standard

Operation and display

Operation panel : Display	15inch color LCD unit
Operation panel : keyboard	Separated MDI unit / stsndard key

Programming assist function

circular interpolation R programming	Standard
Direct drawing dimension programming or Chamfering / Corner R	Standard (Direct drawing dimension programming is standard)
Canned cycle	G90, G92, G94
Multiple repetitive canned cycle	G70 - G76
Multiple repetitive canned cycle II	G71, G72
Canned cycle for drilling	G80 - G89
Sub program	Standard
Custom macro	Standard (common variable#100 - #149, #500 - #549)
Addition to custom macro common variables	Standard (After addition, #100 - #199, #500 - #999)
FS10/11 tape format	Standard
Luck-bei II NT Manual Guide i	Option
Abnormal load detection function	Standard
NT Work Navigator	Standard (not including contact bar)
NT Nurse	Standard

Mechanical support

Rigid type	Standard
Spindle orientation	Standard (Any angle is available within 360°. Control unit : 0.088°)
Driven-Tool rigid tapping	Standard
Polygon function	Standard

Energy-Saving Function

Servo motor off	Standard (selected on energy saving setting screen)
Control of motor output during acceleration and deceleration	Standard (selected on energy saving setting screen)
G code for servo motor energy-saving acceleration and deceleration	G356 / G357 (Acceleration and deceleration time of servo motor is programmable using a G code.)
Fan motor stop	Standard (Fan motor on/off is controlled by detecting temperature of spindle motor)
Auto machine-light off	Standard (selected on the energy saving setting display)
Auto Monitor off	Standard (selected on the energy saving setting display)



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